

R18

Code No: 154CP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year II Semester Examinations, September/October - 2023

SENSORS AND DEVICES

(Computer Science and Engineering (IoT))

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

- 1.a) Why do IoT systems have to be self-adapting and self-configuring? [2]
- b) What is the role of coordinator in wireless sensor network? [3]
- c) What is the function of a data model manager? [2]
- d) What is the role of a NETCONF server? [3]
- e) What is the use of GPIO pins? [2]
- f) What is the use of I²C interfaces on Raspberry Pi. [3]
- g) Write a short note on voltage sensor. [2]
- h) What is a light sensor? How can the intensity of light be measured? [3]
- i) What is the purpose of Amazon Autoscaling group? [2]
- j) What is the use of Amazon Kinesis for IoT? [3]

PART – B

(50 Marks)

2. Differentiate the various levels of IoT system. [10]
- OR**
3. Determine the IOT levels for designing home automation IoT systems including smart lighting and intrusion detection. [10]
- 4.a) Explain about any one network management protocol.
 - b) How can an IoT system be managed with NETCONF-YANG. [5+5]
- OR**
- 5.a) How do data collection and analysis approaches differ in M2M and IOT?
 - b) Explain about the virtualization of network function. [5+5]
- 6.a) Describe about the different components and peripherals present on the Raspberry Pi board.
 - b) Develop a python program for controlling an LED with a switch on a Raspberry Pi. [5+5]
- OR**
- 7.a) With the help of a figure, discuss about the various building blocks of an IoT device.
 - b) Briefly describe about the various alternatives of Raspberry Pi. [5+5]

- 8.a) Illustrate about the bi polar stepper motor.
b) Discuss about switching power devices using transistors. [5+5]

OR

- 9.a) How wireless Bluetooth sensor works?-Give details.
b) Explain the working principle of thermal expansion type thermometric sensors. [5+5]

10. Describe the key concepts of WAMP. Explain the implementation of WAMP publisher and subscriber using AutoBahn. [10]

OR

- 11.a) Illustrate about amazon relational data base service.
b) Discuss about the design of Python web applications framework. [5+5]

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